Name: _____ **Aviation-Powerplant**

Directions:
Evaluate the student by entering the appropriate number to indicate the degree of competency achieved.

Rating Scale (0-3):

- **0** **No Exposure/Unsuccessful Attempt** – no experience/ knowledge in this area; unable to meet knowledge or performance criteria and/or required significant assistance
- **1** **Knowledge Demonstrated** - confirmed knowledge of general principles (no practical application or manipulative skill development)
- **2** **Applied Knowledge/Performance Demonstrated** - confirmed knowledge of general principles; limited practical application; development of sufficient manipulative skill to perform basic operations
- **3** **Applied Knowledge/Repeated Performance Demonstration** - confirmed knowledge of general principles; performance of a high degree of practical application; development of sufficient manipulative skill to simulate return to service

GENERAL CURRICULUM SUBJECTS

3	2	1	0	**A. Perform basic electrical procedures consistent with industry and safety standards**	**Notes:**
				1. Calculate and measure capacitance and inductance.	
				2. Calculate and measure electrical power.	
				3. Measure voltage, current, resistance, and continuity.	
				4. Determine the relationship of voltage, current, and resistance in electrical circuits.	
				5. Read and interpret aircraft electrical circuit diagrams, including solid state devices and logical functions.	
				6. Inspect and service batteries.	
				Other:	

3	2	1	0	**B. Interpret designs, drawings, and specifications**	**Notes:**
				1. Use aircraft drawings, symbols, and system schematics.	
				2. Draw sketches of repairs and alterations.	
				3. Use blueprint information.	
				4. Use graphs and charts.	
				Other:	

3	2	1	0	**C. Calculate aircraft weight and balance**	**Notes:**
				1. Weigh aircraft.	
				2. Perform complete weight-and-balance check and record data.	
				Other:	

3	2	1	0	**D. Construct fluid routing systems**	**Notes:**
				1. Fabricate and install rigid and flexible fluid lines and fittings.	
				Other:	

3	2	1	0	E. Test aviation-related materials	Notes:
				1. Identify and select appropriate nondestructive testing methods.	
				2. Perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections.	
				3. Perform basic heat-treating processes.	
				4. Identify and select aircraft hardware and materials.	
				5. Inspect and check welds.	
				6. Perform precision measurements.	
				Other:	

3	2	1	0	F. Conduct ground operations and servicing	Notes:
				1. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards.	
				2. Identify and select fuels.	
				Other:	

3	2	1	0	G. Conduct cleaning and corrosion control procedures	Notes:
				1. Identify and select cleaning materials.	
				2. Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning.	
				Other:	

3	2	1	0	H. Apply content-related mathematical skills	Notes:
				1. Extract roots and raise numbers to a given power.	
				2. Determine areas and volumes of various geometrical shapes.	
				3. Solve ratio, proportion, and percentage problems.	
				4. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.	
				Other:	

3	2	1	0	I. Document and maintain maintenance records	Notes:
				1. Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records.	
				2. Complete required maintenance forms, records, and inspection reports.	
				Other:	

3	2	1	0	J. Apply basic physics to aviation-powerplant problems	Notes:
				1. Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic	

				aerodynamics, aircraft structures; and theory of flight.	
				Other:	

3	2	1	0	**K. Apply maintenance publications/information to the aviation technician position**	**Notes:**
				1. Demonstrate ability to read, comprehend, and apply information contained in FAA and manufacturers aircraft maintenance specifications, data sheets, manuals, publications, and related Federal Aviation Regulations, Airworthiness Directives, and Advisory material.	
				2. Read technical data.	
				Other:	

3	2	1	0	**L. Exhibit mechanic privileges and limitations**	**Notes:**
				1. Exercise mechanic privileges within the limitations prescribed by Part 65 of this chapter.	
				Other:	

POWERPLANT CURRICULUM SUBJECTS

I. Powerplant Theory and Maintenance

3	2	1	0	**A. Maintain reciprocating engines**	**Notes:**
				1. Inspect and repair a radial engine.	
				2. Overhaul reciprocating engine.	
				3. Inspect, check, service, and repair reciprocating engines and engine installations.	
				4. Install, troubleshoot, and remove reciprocating engines.	
				Other:	

3	2	1	0	**B. Maintain turbine engines**	**Notes:**
				1. Overhaul turbine engine.	
				2. Inspect, check, service, and repair turbine engines and turbine engine installations.	
				3. Install, troubleshoot, and remove turbine engines.	
				Other:	

3	2	1	0	**C. Inspect engines**	**Notes:**
				1. Perform powerplant conformity and airworthiness inspections.	
				Other:	

II. Powerplant Systems and Components

3	2	1	0	**A. Maintain engine instrument systems**	**Notes:**
				1. Troubleshoot, service, and repair electrical and mechanical fluid rate-of- flow indicating systems	

				2. Inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature, pressure, and r.p.m. indicating systems.	
				Other:	

3	2	1	0	**B. Maintain engine fire protection systems**	**Notes:**
				1. Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems	
				Other:	

3	2	1	0	**C. Maintain engine electrical systems**	**Notes:**
				1. Repair engine electrical systems components.	
				2. Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices.	
				Other:	

3	2	1	0	**D. Maintain lubrication systems**	**Notes:**
				1. Identify and select lubricants.	
				2. Repair engine lubrication system components.	
				3. Inspect, check, service, troubleshoot, and repair engine lubrication systems.	
				Other:	

3	2	1	0	**E. Maintain ignition and starting systems**	**Notes:**
				1. Overhaul magneto and ignition harness.	
				2. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components.	
				3. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems.	
				4. Inspect, service, and troubleshoot turbine engine pneumatic starting systems.	
				Other:	

3	2	1	0	**F. Maintain fuel metering systems**	**Notes:**
				1. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls.	
				2. Overhaul carburetor.	
				3. Repair engine fuel metering system components.	
				4. Inspect, check, service, troubleshoot, and repair engine reciprocating and turbine engine fuel metering systems.	
				Other:	

3	2	1	0	G. Maintain engine fuel systems	Notes:
				1. Repair engine fuel system components.	
				2. Inspect, check, service, troubleshoot, and repair engine fuel systems.	
				Other:	

3	2	1	0	H. Maintain induction and engine airflow systems	Notes:
				1. Inspect, check, service, troubleshoot, and repair engine ice and rain control systems.	
				2. Inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems.	
				3. Inspect, check, service, troubleshoot, and repair carburetor air intake and induction manifolds.	
				4. Inspect, check, service, troubleshoot, and repair engine ice and rain control systems.	
				Other:	

3	2	1	0	I. Maintain engine cooling systems	Notes:
				1. Repair engine cooling system components.	
				2. Inspect, check, troubleshoot, service, and repair engine cooling systems.	
				Other:	

3	2	1	0	J. Maintain engine exhaust and reverser systems	Notes:
				1. Repair engine exhaust system components.	
				2. Inspect, check, troubleshoot, service, and repair engine exhaust systems.	
				3. Troubleshoot and repair engine thrust reverser systems and related components.	
				Other:	

3	2	1	0	K. Maintain propellers	Notes:
				1. Inspect, check, service, and repair propeller synchronizing and ice control systems	
				2. Identify and select propeller lubricants.	
				3. Balance propellers.	
				4. Repair propeller control system components.	
				5. Inspect, check, service, and repair fixed-pitch, constant-speed, and feathering propellers, and propeller governing systems.	
				6. Install, troubleshoot, and remove propellers.	
				7. Repair aluminum alloy propeller blades.	
				Other:	

3	2	1	0	L. Maintain unducted fan systems	Notes:
				1. Inspect and troubleshoot unducted fan systems and components.	
				Other:	

3	2	1	0	M. Maintain auxiliary power units	Notes:
				1. Inspect, check, service, and troubleshoot turbine-driven auxilliary power units	
				Other:	

Leadership Development Curriculum[**]

3	2	1	0	A. Demonstrate leadership skills in the classroom, industry, and society	Notes:
				1. Demonstrate an understanding of Skills USA/VICA, its structure, and activities.	
				2. Demonstrate an understanding of one's personal values.	
				3. Perform task related to effective personal management.	
				4. Demonstrate interpersonal skills.	
				5. Demonstrate etiquette and courtesy.	
				6. Demonstrate effectiveness in oral and written communication.	
				7. Develop and maintain a code of professional ethics.	
				8. Maintain a good professional appearance.	
				9. Perform basic task related to securing and terminating employment.	
				10. Perform basic parliamentary procedures in a group meeting.	

[**] These leadership competencies are common to all DESE Competency Profiles